

A new land snail of the genus *Eucalodium* from Belize (Gastropoda: Pulmonata: Urocoptoidea: Eucalodiidae)

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ABSTRACT

Eucalodium belizensis new species is described from Belize. It is the first species of the genus reported from there.

Additional Keywords: Gastropods, land snails, Central America

INTRODUCTION

The subgenus *Eucalodium* is known from mountainous terrains in a rather small area of Belize, Guatemala, and part of Mexico (northern Chiapas and Tabasco.) *Eucalodium* species of are seldom encountered, and they are not common where they are found. This is the first species of the genus and the subgenus reported from Belize. The species is described prior to a review of the genus *Eucalodium* by the senior author.

MEASUREMENTS

The length of adult shell is measured from the top of the apical plug to the base of the aperture. The width of the shell is perpendicular to the axis, but does not include the aperture. The apex is the whorl at the apical plug. The following abbreviations are used in the text: AH = height of aperture; AW = width of aperture; ApexW = width of apical whorl; SL = standard length; SW = standard width.

Eucalodium (Eucalodium) belizensis new species

Figures 1–4

Diagnosis: The shell is purple-brown. It is decollated, solid, and thick-walled, about 51–57 mm long, and includes 9.4–11.8 whorls below the apical plug. The aperture is broadly ovate in shape. The columella is strongly twisted, producing a flattened, crenulated lamella. The uniformly tapered spire is nearly straight-sided. The sculpture consists of distinct riblets on the upper 4–5 whorls. The riblets are less distinct or obsolete

on the lower half of the shell, and then again become distinct on last whorl.

Description: The solid thick-walled shell is purple-brown with a lighter colored base and with a white peristome (Figure 1). It is moderately large, attaining a length of about 51–57 mm below the apical plug, 14.4–15.0 mm standard width, 0.25–0.28 times as wide as long. The aperture is about 0.71–0.85 times the shell width. The shell is decollate and contains 9.4–11.8 whorls. The apical whorl is 7.0–7.8 mm wide, and is 0.48–0.52 times the standard shell width. The whorls are nearly flat with a shallow suture. The spire is slightly concave in profile along the earlier whorls and is slightly convex below. The apical plug is oblique and nearly flat. The base of the last whorl is rounded with an obsolete circum-basal cord. The imperforate umbilicus is marked by a narrow indentation. The sculpture consists of numerous oblique, slightly sigmoid, sharp thread-riblets. The riblets are most distinct on the upper whorls where they are about as wide as their interspaces, and are slightly higher than wide (Figure 3). The riblets are less defined and distinct on the lower part of the spire, and then again become more distinct on the last whorl. In one paratype they are distinct nearly through the length of the spire. The holotype has 96 riblets on the penultimate whorl. A paratype (UF 448722b) has 106 riblets. The aperture projects forward slightly in lateral profile (Figure 2), and is oblique, lying at an angle of about 20–21° to the shell axis (21 in holotype). It is broadly ovate in shape with an obtuse posterior corner. The parietal margin is weakly convex. The peristome is narrowly reflected and rounded. The peristome is widest along the palatal and basal margins, and is narrowest along the parietal margin. A columellar fold extends down and forward to the peristome. The internal axis is strongly twisted, producing a flattened spiral lamella that is crenulated along its edge (Figure 4). The lamella extends for about 0.1 of the distance across the cavity of the whorl. The crenulated nodes on the lamella are most developed in the penultimate and anti-penultimate whorls.



Figures 1–4. *Eucalodium belizensis* new species. 1–3. Holotype (UF 449720). 4. Paratype (UF 449722).

Type Material: Holotype: UF 449720, April 2010. Paratypes: UF 449721 (one specimen), April 2010; UF 449722 (2 specimens), April 2012. All type material from type locality and collected by Valentino Tzub.

Three paratypes are available. Two (UF 449721, UF 449722b) are bleached and worn specimens in which the sculpture is no longer clearly evident. The third paratype (UF 449722a) retains the periostracum and the sculpture. It differs from other paratypes and the holotype by having a relatively wider aperture in which the columellar lamella is stronger and distorts the columellar lip. Standard measurements of type material are given in Table 1.

Type Locality: Belize, Toledo District, 5.5 km north of San José; 2 km northeast of Miramar Hill (16.335° N, 89.114° W), 650 m altitude.

The type locality is reached by the Southern Highway about 8 km from the intersection of the road to Punta Gorda, and right (north) on a paved road, past Crique Jute for about 33 km to the village of San José. The type

locality is approximately 5.5 km due north on a trail from San José.

The collector, Valentino Tzub, is a Kek'chi Mayan from the village of San José who occasionally works as a guide and research assistant for scientific expeditions and research projects in Belize.

Habitat: Specimens were found under leaf litter near Cretaceous limestone outcrops. The landform surrounding the type locality includes hilly karst topography, containing sinkholes and multiple cave formations. The type locality is entirely forested with a tropical wet broad-leaf evergreen forest with cohune palms (*Attalia cohune*) and occasional emergent tree (*Ceiba*) and with an understory layer dominated with shrubs, pteridophytes, and Araceae. Farming activity from San Jose is encroaching into the near-by forest.

DISCUSSION

Eucalodium belizensis is the first record of the genus *Eucalodium* in Belize. *Eucalodium* Fischer and Crosse, 1868 includes four subgenera: *Eucalodium* s.s., *Oligostylus* Pilsbry, 1895, *Resupinata* Martens, 1897, and *Ptychocentrum* Bartsch, 1943 (Thompson, 2011). *Oligostylus* and *Resupinata* are distinguished from *Eucalodium* s.s. by lacking an internal lamella on the axis, and by having thin-walled shells with a brownish periostracum. The generic affinity of *Ptychocentrum* is problematic. It has an internal lamella similar to that in species of the subgenus *Eucalodium*, but the lamella is not crenulated, and the axis is hollow, approaching that

Table 1. Measurements in mm of type material of *Eucalodium belizensis* new species.

	SL	SW	ApexW	AH	AW	Whorls
Holotype	57.3	14.4	7.2	11.8	11.2	10.6
Paratypes						
UF444921	51.3	14.4	7.0	11.4	10.2	9.3
UF444922a	57+	14.7	7.1	—	—	11.3
UF444922b	53.3	15.0	7.8	11.5	12.4	9.4

of *Coelocentrum* species. Its shell is thick-walled and is chestnut-brown in color.

The subgenus *Eucalodium* is known for certain from a rather small area of northern Chiapas, Tabasco (both in Mexico), Guatemala, and Belize. Formerly the subgenus must have been generally distributed and common within this area, but deforestation has extirpated it from much of its former range. Records from there are few. Species are seldom encountered, and they are not common where they are found. The paucity of specimens in museum collections makes taxonomic study difficult. All locality records for the subgenus *Eucalodium* lie north of the North American-Central American Continental Divide in the Polochic Valley of Guatemala-Chiapas. *Oligostylus* is more widespread, ranging from Jalisco, Mexico south to El Salvador (Thompson, 1963). *Resupinata* is found from San Luis Potosí south the Veracruz. *Ptychozentrum* is known from a single locality in Chiapas.

The subgenus *Eucalodium* includes *E. compactum* Pilsbry, 1893, *E. decollatum decollatum* (Nyst, 1841), *E. d. guatemalensis* (Bartsch, 1906, *E. otoides* Thompson, 1968, and *E. mexicanum* (Pfeiffer, 1860). The species are medium sized to large and have a strongly twisted axis that forms a flattened spiral lamella, which may be crenulated along its edge (as in Figure 4). *Eucalodium d. decollatum* is known only from small area near Teapa, Tabasco (Thompson, 2011). *Eucalodium decollatum guatemalensis* is reported from an unspecified locality in Guatemala (Bartsch, 1906). *Eucalodium otoides* is known from a single locality in northern Chiapas, and *E. compactum* is known from an unspecified locality in Tabasco. Pfeiffer (1860) described *E. mexicanum* from an unspecified locality in Mexico. Fischer and Crosse (1873) record a variety of *E. (Eucalodium) mexicanum* from between Tactic and Tamahú, Dept. Alta Verapaz, Guatemala, and they record two forms of *E. mexicanum* from Juquila, Oaxaca. Their records concerning the distribution of *E. mexicanum* appear unlikely because of the wide geographic separations.

Eucalodium belizensis is similar in size to *E. compactum*, which differs from *E. belizensis* by having weaker, more widely spaced sculpture, a concave parietal margin in the aperture, and a thinner, light-brown shell. *Eucalodium otoides* differs from *E. belizensis* by having fewer whorls below the apical plug (7.6–7.9) and by having an auriform aperture with a straight parietal margin, a strongly reflected and twisted columellar margin that forms an obtuse angle with the basal margin, and a more robust shell that is 0.31–0.32 times as wide as long. *Eucalodium decollatum* is a large, robust species. Shells are 64–74 mm in length, and 0.28–0.31 times as wide as long. The sculpture consists of poorly defined oblique riblets that are

nearly obsolete over most of the shell. There are about 75–86 obsolete riblets discernible along the suture on the penultimate whorl. *Eucalodium decollatum guatemalensis* is similar in length and whorl count to *E. belizensis*, except that it is more robust, being 17.5 mm wide at the penultimate whorl, and it has a smooth, not crenulated, columellar lamella. *Eucalodium mexicanum* differs from *E. belizensis* by having a thin-walled shell that is light brown in color.

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LITERATURE CITED

- Bartsch, P. 1906. The urocoptid mollusks from the mainland of America in the collection of the United States National Museum. *Proceedings of the United States National Museum* 31: 100–160.
- Bartsch, P. 1943. A new subgenus and species of *Cochlocentrum*. *The Nautilus* 56: 91–92.
- Fischer, P. and H. Crosse. 1870–1878. *Mission Scientifique au Mexique et dans L'Amerique Centrale. Études sur les mollusques terrestres et fluviatiles du Mexique et du Guatemala*, I. Paris, 702 pp.
- Martens, E. v. 1890–1901. *Biologia Centrali-Americana. Mollusca*. British Museum (Natural History), 706 pp.
- Nyst, H. 1841. *Notices sur deux Cochilles Mexicaines appartenant aux genres Pupa et Helix*. *Bulletin de l'Académie Royal de Bruxelles* 8: 343.
- Pfeiffer, L. 1860. Descriptions of thirty-six new species of land shells from Mr. H. Cuming's collection. *Proceedings of the Zoological Society of London* 1860: 133–141.
- Pilsbry, H.A. 1893a. Notes on a collection of shells from the state of Tabasco, Mexico. *Proceedings of the Academy of Natural Science of Philadelphia* 44: 338–341.
- Pilsbry, H.A. 1902–1903. *Manual of Conchology: Urocoptidae*. Ser. 2, Vol. 15. Academy of Natural Sciences, Philadelphia, 323 pp.
- Strebel, H. and G. Pfeffer. 1880. *Beitrag zur Kenntniss der Fauna mexikanischer Land- und Süsswasser-Conchylien*. Teil IV. Hamburg, J. J. Kerbst, 122 pp., pls. 15 pls.
- Thompson, F.G. 1963. New land snails from El Salvador. *Proceedings of the Biological Society of Washington* 76: 19–32.
- Thompson, F.G. 1968a. Some Mexican land snails of the family Urocoptidae. *Bulletin of the Florida State Museum* 12: 125–183; fig. 1–29.
- Thompson F.G. 2011. An annotated checklist and bibliography of the land and freshwater snails of México and Central America. *Bulletin of the Florida Museum of Natural History* 50: 1–299.